

# Introduction to Programming Using SAS Software

**Duration: 2 units**

**CEUs: 1.2**

## AUDIENCE

This course is designed for non-programmers who need to gain familiarity with SAS programming in their work environment. It is a prerequisite to Programming I: SAS Essentials.

## BENEFITS

This course discusses the basics of SAS programming. It introduces fundamental SAS programming concepts and shows how to apply them to common business issues. The course covers operating system fundamentals, SAS in the Display Manager environment, how SAS works with different file types and how to create, execute and debug SAS code. Students will learn how to:

- ♦ Read raw data and create SAS data sets
- ♦ Write, execute and debug SAS programs
- ♦ Save and update program code
- ♦ Create statistical reports
- ♦ Perform conditional processing
- ♦ Calculate values
- ♦ Submit basic SAS procedures

## PREREQUISITES

No prior programming or SAS background is required. Students should be familiar with a computer and know how to use a keyboard and mouse.

## COURSE TOPICS

### **Fundamental Computer and Programming Concepts**

- ♦ Basic programming concepts
- ♦ Computer system terminology
- ♦ Types of operating systems
- ♦ Programming process flow

### **Introduction to SAS Software**

- ♦ Overview of SAS Software functionality
- ♦ Types of variables
- ♦ SAS statements and steps

### **How to use SAS in the Windows Environment**

- ♦ The SAS toolbar
- ♦ SAS Display Manager windows
- ♦ Display Manager commands
- ♦ Modifying, filing, recalling and saving programs
- ♦ Saving output
- ♦ Accessing SAS Help
- ♦ Analyzing raw data files

### **The SAS Data Step**

- ♦ SAS Data Step Statements
- ♦ Methods of reading raw data
- ♦ Permanent and temporary SAS data sets
- ♦ Internal workings of the Data Step
- ♦ Compile and execution phases
- ♦ Types of errors

### **Creating Reports in SAS Software**

- ♦ Introduction to SAS Procedures
- ♦ The SORT, PRINT, FREQ and MEANS Procedures
- ♦ Enhancing reports with Titles, Labels and Footnotes
- ♦ SAS Formats and Informats

### **Data Management in SAS Software**

- ♦ Calculating new variables
- ♦ Modifying existing variables
- ♦ Using the Assignment Statement
- ♦ Types of expressions

### **Applying Conditional Logic in SAS**

- ♦ Components of conditional logic
- ♦ SAS conditional logic statements

### **Descriptive Statistics for Business Analysis**

- ♦ Proc Freq, the Tables Statement, One and Two Way Tables
- ♦ The VAR and CLASS Statements

Software Used: Base SAS Software